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Digital watermarking research contract awarded to Kodak

by Fran Crumb, Information Directorate

ROME, N.Y. — The Air Force Research Laboratory's Information Directorate has awarded a $499,296 contract to Eastman Kodak Company of Rochester for research involving digital image watermarking technology.

The 17-month agreement is titled "Mathematical Foundations for Robust Multi-Bit Spatial Watermarking."

"Kodak engineers will first examine the optimality of watermark extraction routines in the context of classical detection theory," said Scott F. Adams, program manager in the directorate's Information and Intelligence Exploitation Division.

"An expression for the probability of error given the payload bandwidth, embedding strength, attack strength and other parameters will be formulated," Adams said. "This will lead to improved rotation, synchronization, scale, and warping correction algorithms to increase watermark robustness in the presence of geometrical attacks."

Robust image watermarking invisibly embeds information into a digital image file. The embedded information can survive extensive image processing, attacks, and distortions, even beyond the point where the cover image becomes essentially unusable.

Watermarking offers the ability to protect copyrighted images in the virtual world. Watermarking can be used to verify an image's source, owner, and/or content. For instance, the technology could be utilized by law enforcement to authenticate that images taken at a crime scene are the same being shown in the courtroom, and have not been altered.

Kodak delivered its first digital watermarking camera to directorate researchers two years ago. The camera invisibly and robustly embedded a readable watermark in each image captured. @